

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) An electro-absorption optical modulator comprising:

an absorption layer;

upper and lower clad layers formed on upper and lower portions of the absorption layer, respectively; and

electrodes for applying an electric field to the absorption layer,

wherein the absorption layer ~~is constructed by~~ has a vertical combination of at least two quantum wells having a width different from each other.

2. (Currently Amended) The electro-absorption optical modulator as claimed in claim 1, ~~wherein the quantum wells are combined by the quantum well having a narrow width and the quantum well having a wide width at a ratio of $m : n$ ($m > n$)~~ wherein the at least two quantum wells include a first quantum well having a narrow width and a second quantum well having a wide width, the absorption layer having at least one of the

first quantum well and at least one of the second quantum well at a number ratio of $m > n$, where m is the number of first quantum wells and n is the number of second quantum wells.

3. (Currently Amended) The electro-absorption optical modulator as claimed in claim 2, wherein an α value of the first quantum well ~~the quantum well having the narrow width has a value of a greater~~ is larger than that of an α value of the second quantum well ~~the quantum well having the wide width in~~ the following equation-:

$$P_{out} = P_{in} \exp\left(-\left(V/V_0\right)^\alpha\right)$$

4. (Currently Amended) The electro-absorption optical modulator as claimed in claim 3, wherein ~~the quantum well having the narrow width has the value of a greater than that of the quantum well having the wide width~~ the α value of the first quantum well is larger than that of the second quantum well by at least 0.5.

5. (Currently Amended) The electro-absorption optical modulator as claimed in claim 1, wherein the absorption layer ~~is~~

~~made from~~ includes ~~an InGaAsP-based material~~ a compound
semiconductor base material.

6. (Original) The electro-absorption optical modulator as claimed in claim 1, wherein the lower clad layer is formed of a semiconductor substrate.